

CAMP Work Plan for Fiscal Year 2007

I. Program Title

Comprehensive Assessment & Monitoring Program – CVPIA Section 3406(b)(16).

II. Responsible Entities

TABLE A. ENTITIES RESPONSIBLE FOR IMPLEMENTING THE CAMP

Agency	Staff Name	Role
U.S. Fish and Wildlife Service	Doug Threlhoff	lead, Program Manager
U.S. Bureau of Reclamation	Ken Lentz	co-lead, Reclamation Coordinator

III. CAMP Program Objectives for FY 2007

Section 3406(b) of the Central Valley Project Improvement Act (CVPIA) directs the Secretary of the Interior (Secretary) to conduct a variety of activities that will result in the restoration of fish and wildlife species and their habitats. These restoration activities are necessary because several fish and wildlife species were affected by the Central Valley Project.

Section 3406(b)(16) of the CVPIA requires that a comprehensive assessment program (*i.e.*, the Comprehensive Assessment and Monitoring Program (CAMP)) be established to monitor fish and wildlife resources in the Central Valley and assess the biological results and effectiveness of restoration activities undertaken pursuant to other CVPIA provisions. Other programs that conduct activities pursuant to Section 3406(b) of the CVPIA rely on data that are synthesized by the CAMP to help monitor restoration progress, prioritize future restoration actions, and conduct adaptive management.

To monitor the results of restoration activities, the CAMP focuses on two program objectives:

1. Assessing the overall (cumulative) effectiveness of restoration actions implemented under Section 3406(b) of the CVPIA so that progress toward restoration goals can be ascertained; and
2. Assessing the relative effectiveness of categories of restoration actions implemented under Section 3406(b) of the CVPIA so restoration can proceed in the most effective manner through adaptive management.

In addition to the mandate in CVPIA section 3406(b)(16), these program objectives are supported by the CVPIA Programmatic Record of Decision, the CAMP Conceptual Plan, and the CAMP Implementation Plan.

As the CAMP monitors the benefits of restoration activities, it will focus on measuring fish and wildlife numbers and habitats on a watershed or regional basis instead of determining how animal numbers or habitats are affected by individual restoration projects.

IV. Status of the CAMP

The CAMP historically has not had a full-time manager. In an effort to create a more robust CAMP that monitors a diversity of restoration activities and assesses the relative effectiveness of these restoration activities, a new full-time CAMP manager was hired in August, 2006. This individual is responsible for a variety of duties that will enhance and update the CAMP. Beginning in FY 2007, the CAMP manager will:

1. Identify near-term monitoring and assessment priorities for FY 2007;
2. Conduct a comprehensive assessment to determine the future program scope, direction, and costs associated with the CAMP. This assessment will be conducted by reviewing the status of past and ongoing monitoring projects, identifying data gaps that currently exist, and developing a programmatic document that identifies the critical monitoring activities that need to be conducted between FY 2008 and 2012. The programmatic document, which will likely be provided as an addendum to the existing CAMP Implementation Plan, will also provide an estimate of the cost of conducting the critical monitoring activities, and identify a mechanism for making that monitoring information available to interested parties;
3. Develop cooperative relationships with other entities (*e.g.*, the CALFED program) that also work with anadromous fish and other pertinent species so there is an enhanced ability to share financial resources and complete large-scale projects;
4. Update and improve the CAMP website so it provides timely information that is useful to stakeholders and a variety of State and Federal agency staff; and
5. Evaluate, and as necessary, revise sampling protocols so data collection activities yield data that are more accurate, precise, and comparable.

In addition to the new full-time manager, the CAMP hired a technical assistant in 2006. The technical assistant will work half-time on the CAMP, and assist the CAMP manager by conducting the following activities:

1. Provide technical guidance/expertise pertaining to the monitoring activities (*e.g.*, sample design, quality assurance and quality control,

sampling methodologies, identification of data gaps, ranking funding proposals for scientific merit, and direction of future monitoring efforts);

2. Evaluate/analyze existing monitoring data;
3. Serve as the primary liaison between the CAMP and similar monitoring programs; *e.g.*, Interagency Ecological Program, the San Francisco Estuary Institute, and CALFED's Comprehensive Monitoring, Assessment and Research Program in an effort to facilitate the transfer of information and reduce the likelihood that redundant data are being collected;
4. Assist with integration of CAMP objectives within the suite of ongoing biomonitoring projects and mandates to maximize effective use of financial resources; and
5. Assist with the coordination/technical oversight/facilitation of the CAMP within the larger context of the monitoring activities conducted by other Federal and State agencies.

V. FY 2006 CAMP Accomplishments

The CAMP's accomplishments in FY 2006 included hiring the new manager and technical assistant, providing funds that were used to facilitate eight anadromous fish projects. The funding to complete the eight projects in FY 2006 was derived from a CAMP account and an Anadromous Fish Restoration Program (AFRP) account that is managed by the Sacramento Fish and Wildlife Office. These funds collectively totaled \$533,465. The eight projects (and their associated CAMP/AFRP costs) included:

1. Purchasing a digital video recorder to assess salmonid escapement rates on Battle Creek, California (\$10,000). Staff from the U.S. Fish and Wildlife Service (FWS) purchased a digital video recorder (DVR) and will conduct a study to determine if this device can be used to estimate salmonid escapement levels on Battle Creek at the Coleman National Fish Hatchery. The study will be done by staff from the Red Bluff Fish and Wildlife Office (RBFWO). RBFWO staff currently use analog video tape recorders to estimate the escapement levels of steelhead trout and winter-, spring-, and late fall-run Chinook salmon at the hatchery. RBFWO staff believe the use of the DVR will provide a more cost effective tool to estimate salmonid escapement levels, and provide an enhanced ability to archive and recover the escapement data that is collected.
2. Collecting information that can be used to develop habitat suitability indices for juvenile salmonids on Clear Creek, California (\$75,000). The CAMP funds allowed RBFWO staff to co-fund ongoing efforts to collect data that quantifies the habitat features that are important to juvenile

steelhead and spring-run Chinook salmon numbers on Clear Creek. These data will be incorporated into habitat suitability indices (HSIs) and used in Instream Flow Incremental Methodology (IFIM) analyses to provide a baseline for assessing the benefits of instream habitat restoration and predict which flow regimes are necessary to promote the increased production of young salmonids on Clear Creek. The data also will provide an enhanced ability to address the anadromous fish doubling goal identified in Section 3406(b)(1) of the CVPIA.

3. Developing a report that summarizes juvenile salmonid data pertaining to Battle Creek, California (\$35,000). Between 1998 and 2001, the RBFWO staff collected a large amount of data that quantifies the production of juvenile salmonids on Battle Creek. The data have never undergone thorough analysis, and a report summarizing the data has not been produced. CAMP funds were used to hire staff to analyze the data that were previously collected, and develop a comprehensive report that identifies the habitat attributes that were important to juvenile salmonids in Battle Creek between 1998 and 2001. The report will provide a basis to assess the effectiveness of habitat restoration activities that have been conducted on Battle Creek, and provide new insight into how flow regimes in this creek should be managed to increase juvenile salmonid numbers. The analysis also should provide an enhanced ability to count juvenile salmonids using rotary screw traps.
4. Conducting a winter-run Chinook salmon carcass survey on the Sacramento River, California (\$108,000). RBFWO staff will conduct a carcass survey to assess the abundance, migration timing, spawning distribution, and life history characteristics of hatchery- and natural-origin winter-run Chinook salmon on a portion of the Sacramento River during the 2006 spawning season. Completion of this project will provide data that can be used to determine if restoration activities are resulting in progress toward doubling salmon numbers on the Sacramento River relative to mean baseline levels between 1967 and 1991. The survey will also provide basic ecological data for salmon in the Sacramento River, and quantify the relative abundance of natural-origin (vs. hatchery) fish.
5. Operating rotary screw traps to collect juvenile salmonid data on the Stanislaus River, California (\$50,824). The Cramer Fish Sciences (CFS) consulting company will be hired to operate two rotary screw traps on the Stanislaus River. These traps will collect juvenile fall-run Chinook salmon and steelhead trout that move through the lower Stanislaus River toward the San Joaquin River in 2006 and 2007. Coincident with the operation of the rotary screw traps, a complementary coded wire tagging study may be conducted. The trapping data collected with the rotary screw traps will be used to: (a) provide an estimate of the abundance of

juvenile salmonids that migrate past the rotary screw traps; (b) assess the patterns of timing, size, and abundance of juvenile salmon relative to flow and other environmental conditions; (c) obtain indices of survival rates through different reaches of the lower Stanislaus River; and (d) assess the effects of differing instream flow schedules and/or other anthropogenic and environmental variables on salmonid production. Acquisition of this information will provide an enhanced ability to assess the effectiveness of habitat restoration activities conducted on the Stanislaus River.

6. Operating rotary screw traps to collect juvenile salmonid data on the Merced River, California (\$160,060). CFS will be hired to operate two rotary screw traps that will be deployed on the Merced River. These traps will collect juvenile Chinook salmon and steelhead trout that move through the lower Merced River toward the San Joaquin River in 2006 and 2007. The traps will be used to: (a) provide an estimate of the abundance of juvenile salmonids that move through the lower Merced River toward the San Joaquin River; (b) determine and evaluate patterns of timing, size, and abundance of juvenile salmonids relative to flow and other environmental conditions; and (c) if sufficient data are available, obtain indices of survival rates through different reaches of the lower Merced River. Acquisition of this information will provide an enhanced ability to assess the effectiveness of habitat restoration activities conducted on the Merced River.
7. Developing estimates of the production of adult Chinook salmon in the Central Valley in 2005. This activity is a CAMP responsibility, but was performed by U.S. Fish and Wildlife Service staff in the AFRP. These estimates are based, in part, on the “GrandTab” Excel spreadsheet maintained by California Department of Fish and Game. This spreadsheet is available on the Internet at: http://www.delta.dfg.ca.gov/afrp/documents/GrandTab_6_21_06.xls.
8. Collecting data that evaluates habitat use by Chinook salmon and steelhead on the lower American River, Sacramento River, and the Sacramento-San Joaquin River Delta (\$94,581). These data will be used to develop habitat restoration plans and provide a baseline for measuring the effects of future restoration activities. The habitat use information will also be useful to agencies that regulate flow rates on the American River (e.g., adjusting in-stream flow below Folsom Dam to benefit fish).

VI. CAMP Tasks, Costs, Schedules and Deliverables For FY 2007

A. Narrative Explanation of Tasks.

In FY 2007, several CAMP-related activities will be conducted. These will include:

1. Manage program. The CAMP will be responsible for conducting program management activities that will include, but not be limited to:
 - A. Developing annual planning documents. These documents may include a revised FY 2007 Annual Work Plan, and a draft FY 2008 Annual Work Plan.
 - B. Conducting a comprehensive assessment to determine future program scope, direction, and cost. Because the CAMP has not had a full-time manager to conduct a comprehensive program assessment and update how the program would best be implemented, there is a need to conduct an in-depth review to determine the future program scope, direction, and cost of monitoring activities associated with the CAMP. The important elements of this assessment will be incorporated into an updated CAMP Implementation Plan, or annual work plans. The comprehensive assessment will:
 1. Provide an updated mission statement that describes the CAMP purpose, goals, and justification;
 2. Describe the types of monitoring data that will: a) be most useful to stakeholders and managers in State and Federal agencies, and b) meet the legal mandate of the CAMP;
 3. Provide performance measures and success criteria for the CAMP;
 4. Identify the partnerships CAMP will develop to share financial resources, expertise, and data;
 5. Provide criteria that will be used to identify and prioritize future monitoring projects that may be funded with CAMP dollars;
 6. Identify specific monitoring projects that may require supplemental CAMP funding to ensure they occur between 2008 and 2012;

7. Quantify the amount of supplemental CAMP funding that will be required to complete under-funded monitoring projects during the 2008 - 2012 period; and
 8. Result in the development of templates, *i.e.* “frameworks”, that CVPIA programs should use as they provide their monitoring data to the CAMP.
- C. Developing the CAMP annual report. An annual report will be prepared to summarize production estimates for adult anadromous fish species, report population parameters of juvenile anadromous fish species, assess progress toward measurable goals for the Habitat Restoration Program (HRP) that pertains to restoration activities that benefit terrestrial species, and other pertinent data that can be used to assess progress toward meeting CAMP program objectives 1 and 2.
- D. Providing technical assistance to Habitat Restoration Program staff. This assistance will consist of CAMP staff providing technical expertise to HRP staff. The CAMP advice will focus on providing recommendations to assess and improve ongoing monitoring activities, and provide recommendations for future HRP program actions. It will be necessary for the HRP to identify monitoring activities and measurable outcomes of HRP actions, based on specific habitats and species, and identify quantitative targets that serve as benchmarks to measure success. Previous restoration efforts of the HRP can then be summarized and ongoing and future efforts can be monitored to assess progress toward mitigation targets.
2. Monitoring anadromous fish numbers. The abundance of anadromous fish in Central Valley rivers and streams will be quantified with:
- A. FY 2007 CAMP funds. Completion of this element will be conducted by acquiring, and providing funds to, quantify and monitor salmonid numbers; establish and oversee contracts and facilitating projects to conduct monitoring activities; reviewing products that report the results of monitoring activities; and ensuring there is accountability in regard to the deliverables that should be produced as CAMP-funded contracts or projects occur.

At the present time, the specific monitoring projects that will be funded by the CAMP in FY 2007 have not been selected. It is expected, however, that the projects to be done in FY 2007 will be similar to those that were funded in FY 2006. For example, in-

river monitoring of adult fish will likely be done by developing estimates of spawner abundance using methods such as carcass surveys, ladder counts, snorkel surveys, and aerial redd counts; counting the number of naturally produced anadromous fish entering hatcheries (estimated by hatchery returns); and assessing the degree of in-river angler harvest. In-river assessment of juvenile anadromous fish numbers will most commonly be accomplished by counting fish with rotary screw traps.

The costs associated with specific types of monitoring activities in FY 2007 (*e.g.*, conducting a carcass survey or operating rotary screw traps) can be estimated from projects that were funded in FY 2006. For example, a carcass survey typically costs approximately \$110,000 and the cost for counting juvenile fish in a particular stream using rotary screw traps is approximately \$150,000 - \$200,000 depending on the length of the field season.

The FY 2007 CAMP budget is expected to be \$400,000. Of this amount, approximately \$285,518 will be required to manage the program. Therefore, the existing FY 2007 CAMP budget will only be able to provide a total of \$114,482 for monitoring projects (\$400,000 - \$285,518), which is a substantially smaller sum than what the program provided in FY 2006. In FY 2007, it is anticipated that half of the \$114,482 that is available for monitoring projects will be devoted to projects with a 6 % administrative overhead, and the other half will be devoted to projects with a 22 % administrative overhead.

B. Supplemental funds, as available. Because a large percentage of the existing FY 2007 CAMP budget will be used to pay for the direct salary and benefit costs associated with the CAMP manager and technical assistant, there will be far fewer funds in FY 2007 than FY 2006 to pay for monitoring projects. Because the need to conduct monitoring activities will not decrease in FY 2007, the CAMP will require supplemental funds in FY 2007 to facilitate monitoring projects at the same level which occurred in FY 2006. Therefore, the CAMP is requesting supplemental funds in the amount of \$418,983 (\$533,465-\$114,482) to maintain this level of monitoring in FY 2007.

3. Manage program. In FY 2007, U.S. Bureau of Reclamation (USBR) staff will be:

A. Assisting with annual planning documents and program management. The USBR will assist with the review and

completion of the FY 2007 Annual Work Plan and program management activities as needed.

4. Review restoration projects. In FY 2007, the CAMP will investigate ways to use monitoring data to review restoration projects. The program will also investigate ways to determine if adaptive management strategies can increase the effectiveness of future restoration projects. The investigations will be done in consultation with the programs that conducted the restoration activities (*i.e.*, Anadromous Fish Restoration Program, Anadromous Fish Screen Program, Dedicated Yield Management Program, Water Acquisition Program, and Gravel Replenishment Program). The investigations will be conducted by:

- A. Reviewing completed or ongoing anadromous fish restoration projects. To complete this element, data will be gathered from relevant parties (*e.g.*, the AFRP and other similar programs) to determine the degree to which data can be used to indicate success of restoration actions in achieving CAMP program objective #1 for anadromous fish. Evaluations and data analyses will review estimations of population parameters such as adult escapement numbers and juvenile production, generally at a system-wide level (*e.g.*, entire watersheds or regions), and ultimately lead to an assessment of the population doubling goal. These data will continue to be incorporated into the Grand Tab Excel spreadsheet maintained by California Department of Fish and Game or other existing databases. Similar assessments will address goals of the HRP.

Data will also be collected and used to evaluate restoration actions in the context of accomplishing CAMP program objective #2 for anadromous fish. Evaluations will rely on data compilation from ongoing and completed projects and general monitoring and analyzing the data to ascertain which restoration activities appear most effective given relevant environmental conditions, such as geographic location, stream flow, channel geomorphology, and population limiting factors. Similar assessments will address goals of the HRP.

TABLE B. CAMP Schedule and Deliverables for FY 2007

Task #	Task	start date	end date	Deliverable/Activity
1	Manage Program (FWS)	10/01/06	09/30/07	
	A. Develop annual planning documents			<ul style="list-style-type: none"> • Revise FY 2007 Annual Work Plan as necessary. • Develop draft FY 2008 Annual Work Plan.
	B. Conduct a comprehensive assessment to determine future program scope, direction, and cost			<ul style="list-style-type: none"> • Develop a programmatic document identifying monitoring activities that will be conducted between FY 2008 and 2012. The document will also quantify the funding levels required to complete this work. USBR will be asked to provide review comments on a draft of the document before it is finalized.
	C. Develop CAMP annual report			<ul style="list-style-type: none"> • Develop annual report that provides monitoring results and recommendations for future work.
	D. Provide technical assistance to Habitat Restoration Program staff			<ul style="list-style-type: none"> • Acquire monitoring data. • Facilitate data analysis. • Assist with the formulation of monitoring strategies.
2	Monitor anadromous fish numbers (FWS)	10/01/06	09/30/07	
	A. Use existing FY 2007 CAMP funds to monitor anadromous fish numbers			<ul style="list-style-type: none"> • Acquire monitoring data. Conduct data analyses. Report results. • Award contracts and Statements of Work to conduct monitoring activities in the Annual Work Plan. • Ensure that the entities that receive funding to do projects complete appropriate deliverables in a timely fashion.
	B. Use supplemental funds, as available, to monitor anadromous fish numbers			<ul style="list-style-type: none"> • Same deliverables as task 2A
3	Manage Program (USBR)	10/01/06	09/30/07	
	A. Assist with annual planning documents and program management			<ul style="list-style-type: none"> • Complete activities in FY 2007 Annual Work Plan. • Perform as Program Manager when necessary.
4	Review restoration projects (FWS and USBR)	10/01/06	09/30/07	
	A. Review completed or ongoing anadromous fish restoration projects			<ul style="list-style-type: none"> • Acquire monitoring data. Conduct data analyses. Report results. • Develop recommendations to improve future restoration activities.

TABLE C. CAMP Summary of Program Costs and Funding Sources for FY 2007

Task #	Task	Total Cost	Funding Source: Restoration Fund
1A, 1B, 1C, and 1D (FWS)	Manage Program (1.5 FTE/year): <ul style="list-style-type: none"> • Develop annual planning documents; • Conduct a comprehensive assessment to determine future program scope, direction, and cost; • Develop the CAMP annual report; • Provide technical assistance to Habitat Restoration Program staff 	\$280,518	\$280,518
2A (FWS)	Monitor anadromous fish numbers: <ul style="list-style-type: none"> • Use existing FY 2007 CAMP funds to monitor anadromous fish numbers 	\$114,482	\$114,482
2 B (FWS)	Monitor anadromous fish numbers: <ul style="list-style-type: none"> • Use supplemental funds, as available, to monitor anadromous fish numbers 	(\$418,983) ¹	(\$418,983) ¹
3A (USBR)	Manage Program (0.03 FTE/year): <ul style="list-style-type: none"> • Assist with annual planning documents and program management 	\$5,000	\$5,000
4A (FWS and USBR)	Review restoration projects: <ul style="list-style-type: none"> • Review completed or ongoing anadromous fish restoration projects 	\$0 ²	\$0 ²
	Total Program Budget	\$400,000¹	\$400,000¹

1 = The supplemental funds that are needed to monitor anadromous fish numbers in FY 2007 are not included in the Total Program Budget.

2 = The cost to the CAMP and USBR to complete task 4A will be included in the cost estimates to complete tasks 1A and 3A, and are being included as a separate line item in the CAMP Summary of Program Costs and Funding Sources for FY 2007 because they reflect a responsibility both agencies will jointly assume.

TABLE D. CAMP Program Budget for FY 2007 Budget figures assume a bioday rate of \$842.25; w/ 22% overhead = \$1,027.54/day, and 182 work days/year.

Task #	Task	FTE	Direct Salary and Benefits Cost	Contracts Cost	Administrative Cost	Total Cost
1A, 1B, 1C, and 1D (FWS)	Manage Program: <ul style="list-style-type: none"> Develop annual planning documents; Conduct a comprehensive assessment to determine future program scope, direction, and cost; Develop the CAMP annual report; Provide technical assistance to the Habitat Restoration Program 	1.5	\$229,933	\$0	\$50,585 ¹	\$280,518
2A (FWS)	Monitor anadromous fish numbers: <ul style="list-style-type: none"> Use existing FY 2007 CAMP funds to monitor anadromous fish numbers 	0	\$0	\$54,001	\$3,240 ²	\$57,241
		0	\$0	\$46,919	\$10,322 ¹	\$57,241
2 B (FWS)	Monitor anadromous fish numbers: <ul style="list-style-type: none"> Use supplemental funds, as available, to monitor anadromous fish numbers 	0	\$0	(\$418,983) ³	\$0	(\$418,983) ³
3A (USBR)	Manage program: <ul style="list-style-type: none"> Assist with annual planning documents and program management 	0.03	\$5,000	\$0	\$0	\$5,000
4A (FWS and USBR)	Review restoration projects: <ul style="list-style-type: none"> Review completed or ongoing anadromous fish restoration projects 	0	\$0 ⁴	\$0	\$0 ⁴	\$0 ⁴
Total Program Budget		1.53	\$234,933	\$100,920³	\$64,147³	\$400,000³

1 = This administrative cost assumes that 22 % of the Total Cost is attributed to the administrative cost.

2 = This administrative cost assumes that 6 % of the Total Cost is attributed to the administrative cost.

3 = The supplemental funds that are needed to monitor anadromous fish numbers in FY 2007 are not included in the Total Program Budget.

4 = The cost to the CAMP and USBR to complete task 4A will be included in the cost estimates to complete tasks 1A and 3A, and are being included as a separate line item in the CAMP Summary of Program Costs and Funding Sources for FY 2007 because they reflect a

responsibility both agencies will jointly assume..

TABLE E. DRAFT CVPIA 5-Year Capability Budget Plan FY 2008 – 2012 (\$ thousands)

Program Description and CVPIA Section	Fund Source	Potential Priority Expenditures (In order of Priority)	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	Total (\$)
Comprehensive Assessment and Monitoring Program (CAMP) CVPIA Section 3406(b)(16)	Restoration Fund	Manage Program (2.1 FTE/year)	\$384	\$403	\$423	\$444	\$467	\$2,121
	Restoration Fund	Monitor anadromous fish numbers	\$2,386	\$4,566	\$6,602	\$6,602	\$6,602	\$26,758
	Restoration Fund	Review restoration projects	\$116	\$1,200	\$1,200	\$1,300	\$1,400	\$5,216
Total:	Restoration Fund		\$2,886	\$6,169	\$8,225	\$8,346	\$8,469	\$34,095

Increases in the budget figures to manage the CAMP after 2008 assume 5% annual inflation of the value in 2008.

Increases in the budget figures to review restoration projects reflects the anticipated effort to manage the program at full performance levels.

Increases in the budget figures to monitor anadromous fish in 2008, 2009, and 2010 reflect current estimates that have been developed by CAMP staff. Cost estimates for 2011 and 2012 assume that the costs in those years will be comparable to the level that will probably occur in 2010, and may be revised pending future analysis.

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